CLAIMS

1. Method for piloting mobile objects (V1, V2, V3) driven by actuators (M), particularly miniature cars, on a continuous track, said mobile objects being guided by operators via a guide circuit (C1, C2, C3) comprising several lanes (C1), (C2), (C3), (C4), said guide circuit being common to the various mobile objects moving around the same track, said method comprising the following steps:

- the step, for said operator, of choosing, ahead of time or in real time, a mobility strategy for said mobile object,

- the step, for said operator, of parameterizing said mobile object based on the mobility strategy chosen, and/or

- the step, for said operator, of transmitting to said mobile object control instructions (Data, Data Vi) in accordance with the mobility strategy chosen, including control instructions related to its speed and to the guide lane used,

- the step, for said mobile object, of selecting the guide lane used based on said mobility strategy, as it moves around the track.

2. Method according to claim 1, said method being such that the mobility strategy is characterized by at least one of the following parameters:

· initialization parameters specifying:

- the type of mobile object,

- the type of driving,

- the types and/or quantities of resources available, for example, in the case of miniature cars, the nature of the tires, the initial gasoline allocation, etc.,

· parameters specifying the driving:

- a speed parameter,

- a lane change parameter.

3. Method according to either of claims 1 and 2, said method being such that, in order to parameterize said mobile object based on the mobility strategy chosen, said method also comprises the step, for the operator, of entering data and/or macro commands into a memory area located in the mobile object, said memory area being associated with a microcontroller (UT2, W2) that controls said actuators.

4. Method according to any of claims 1 through 3, said method being such that, in order to transmit to said mobile object control instructions in accordance with the mobility strategy chosen, said method also comprises the following steps:

- the step of initializing each of said mobile objects by assigning them an identifier (IDENT), particularly an alphanumeric identifier.

- the step of formatting said control instructions in the form of digital data by associating them with said identifier of the mobile object in question,

- the step of multiplexing in said guide circuit said control instructions specific to each of said mobile objects and the electric power supply (T1, W1) required to operate said mobile object,

- the step, for each microcontroller of each mobile object, of extracting from the multiplexed control instructions those that are associated with the identifier that has been assigned to said mobile object in question,

said method also comprising the step, for said microcontroller, of controlling the actuators based on the extracted control instructions.

5. Method according to claim 4, said method being such that the multiplexing is a time multiplexing.

6. Method according to claim 5, said time multiplexing being such that after each phase (Data Vi) for transmitting the control instructions associated with a given mobile object, there is a phase (POWER) for supplying electric power.

7. Method according to any of claims 1 through 3, said method also comprising the step of supplying (SUPPLY) power to said actuators of said mobile object through an electrical circuit associated with the guide circuit and/or through a battery and/or through a rechargeable battery in said mobile object, said method being such that, in order to transmit to said mobile object control instructions in accordance with the mobility strategy chosen, said method also comprises the following steps:

- the step of initializing each of said mobile objects by assigning each of them an identifier, particularly an alphanumeric identifier,

- the step of formatting said control instructions in the form of digital data by associating them with said identifier of the mobile object in question,

- the step of transmitting to said mobile objects a signal, particularly an optical – for example infrared – signal and/or a sound signal and/or an electromagnetic signal,

- the step, for each microcontroller of each mobile object, of extracting from said signal the control instructions associated with the identifier assigned to said mobile object in question,

said method also comprising the step, for said microcontroller, of controlling said actuators based on the control instructions extracted from said signal.

8. Method according to any of claims 1 through 7, said method being such that in order to select the guide lane used based on said mobility strategy, while said mobile object is moving around the track, said method also comprises the following steps:

- the step, for a given mobile object, of transmitting (G, E1) a guide signal, particularly an optical – for example infrared – signal, to a receiver (D1) disposed on the guide circuit and/or on the track;

- the step, for said receiver, of decoding said guide signal to produce a signal for controlling the state of a switch (A1, B1) associated with said receiver and disposed on the guide circuit,

- the step, for said switch, of changing states as a function of said control signal,

so that as the mobile object moves around the track, said mobile object actuates said switch that allows it to change lanes,

so that the operator transmitting control instructions to the mobile object can see that the lateral movements of the mobile object on the track are practically identical to those that would be observed by an observer actuating a steering wheel for changing the direction of said mobile object, whose point of view would be associated with said mobile object,

so that a mobile object moving around said track can pass another one located in front of it by swerving laterally.

9. Method according to claim 8, said receiver being disposed on the guide circuit and/or on the track ahead of said switch and at a distance from the latter such that a change in the state of said switch cannot produce a change in the movement of any mobile object other than the one that first actuated said switch.

10. Method according to either of claims 8 and 9, said method being such that it also comprises the step of automatically switching (B1) said switch to a predetermined state after the passage of a mobile object that has actuated it.

11. Method according to claim 10, said predetermined state being the initial state.

12. Method according to any of claims 1 through 11, said method also comprising the step of determining the number of laps around the track performed by each mobile object by detecting a label (L) associated with a given mobile object by means of a reader (CL), particularly an optical or electromagnetic reader, integral with the track.

13. Method according to any of claims 1 through 12, said method also comprising the step of timing the time taken by a given mobile object to perform a given number of laps around said track, said timing being performed by detecting the passage of a label associated with the mobile object read by means of a reader, particularly an optical and/or electromagnetic reader, integral with the track.

14. System for piloting mobile objects (V1, V2, V3) driven by actuators (M), particularly miniature cars, on a continuous track, said mobile objects being guided by operators via a guide circuit (C1, C2, C3, C4) comprising several lanes (C1), (C2), (C3), (C4), said guide circuit being common to the various mobile objects moving around the same track, said operator having chosen, ahead of time or in real time, a mobility strategy for said mobile object,

said system comprising:

- parameterizing means (UT1, UT2) for parameterizing said mobile object based on the mobility strategy chosen, and/or

- transmission means (UC1, W1, UT1, C1, C2, C3, C4, UT2) for transmitting to said mobile object control instructions in accordance with the mobility strategy chosen, particularly control instructions related to its speed and to the guide lane used,

said mobile object including selection means (E1, G, UC2, UT2) for selecting the guide lane used based on said mobility strategy, said selection means being implemented by said mobile object as it moves around the track.

15. System according to claim 14, said system being such that the mobility strategy is characterized by one of the following parameters:

· initialization parameters specifying:

- the type of mobile object,

- the type of driving,

- the types and/or quantities of resources available, for example in the case of miniature cars, the nature of the tires, the initial gasoline allocation, etc.,

· parameters specifying the driving:

- a speed parameter,

- a lane change parameter.

16. System according to either of claims 14 and 15, said system being such that said parameterization means include a control element for entering data and/or macro commands into a memory area located in the mobile object, said memory area being associated with a microcontroller (UT2) that controls said actuators.

17. System according to any of claims 14 through 16, each mobile object being identified by an identifier (IDENT), particularly an alphanumeric identifier,

said system also including a base comprising:

- joysticks (J1, J2, J3) actuated by the operator in order to acquire control instructions (DATA Vi),

- data processing means (UT1, W1) for formatting said control instructions in the form of digital data by associating them with said identifier of the mobile object in question,

- multiplexing means (UC1) for multiplexing, in said guide circuit, said control instructions specific to each of said mobile objects and the electric power supply (TR, T1) required to operate said mobile object,

each microcontroller of each mobile object making it possible to extract from the multiplexed control instructions those that are associated with the identifier that has been assigned to said mobile object in question,

said microcontroller controlling said actuators based on the extracted control instructions.

18. System according to claim 17, said system being such that the multiplexing means perform a time multiplexing of said control instructions with the power supply.

19. System according to claim 18, said time multiplexing being such that after each phase for transmitting the control instructions (DATA Vi) associated with a given mobile object, there is a phase (POWER) for supplying electric power.

20. System according to any of claims 14 through 16, said system also comprising an electric power supply (ALIM) for the actuators, constituted by an electrical circuit associated with the guide circuit and/or by a battery and/or by a rechargeable battery in said mobile object, each mobile object being identified by an identifier, particularly an alphanumeric identifier,

said system also including a base comprising:

- joysticks (J1, J2, J3) actuated by the operator in order to acquire control instructions,

- data processing means (UT1, W1) for formatting said control instructions in the form of digital data by associating them with said identifier of the mobile object in question,

- transmission means for transmitting to said mobile objects a signal, particularly an optical – for example infrared – signal and/or a sound signal and/or an electromagnetic signal,

each microcontroller of each mobile object making it possible to extract from said signal the control instructions associated with the identifier assigned to said mobile object in question, said microcontroller controlling said actuators based on the extracted control instructions.

21. System according to any of claims 14 through 20, said guide circuit being in the form of several guide lanes, each mobile object including a guide element that cooperates with said guide lanes, said guide lanes being interconnected by switches (A1, B1), said mobile object including transmission means (E1) for transmitting a guide signal, particularly an optical – for example infrared – signal, to a switch receiver (D1) associated with a given switch, disposed on the guide circuit and/or on the track, said switch receiver including decoding means for decoding said guide signal in order to produce a control signal for the switch, said switch including a moving element (B1) that is actuated by said control signal for the switch, which is capable of assuming at least two positions,

so that said mobile object can thus select the guide lane used, based on the mobility strategy, as it moves around the track.

22. System according to claim 21, said switch receiver being disposed on the guide circuit and/or on the track ahead of said switch and at a distance from the latter such that a change in the position of the moving element of said switch cannot produce a change in the movement of any mobile object other than the one that first actuated said switch.

23. System according to either of claims 21 and 22, said system being such that it also comprises return means (Q) for automatically switching said switch to a predetermined state after the passage of a mobile object that has actuated it.

24. System according to claim 23, said predetermined state being the initial state.

25. System according to any of claims 14 through 24, said system also comprising:

- a label reader (CL), particularly an optical and/or electromagnetic reader, integral with the track, for detecting a label (L) associated with a given mobile object, particularly an optical and/or electromagnetic reader, integral with the track,
- computing means associated with said label reader, for determining the number of laps around the track performed by each mobile object.

26. System according to any of claims 14 through 25, said system also comprising:

- a label reader (CL), particularly an optical and/or electromagnetic reader, integral with the track, for detecting a label (L) associated with a given mobile object,
- timing means associated with said label reader, for timing the time taken by a given mobile object to perform a given number around laps around said track.